Determinants of Non-Life Insurance Demand in the MENA Region
محددات الطلب على التأمين على غير الحياة في منطقة الشرق الأوسط وشمال إفريقيا

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Abstract:

The object of this paper is to identify the determinants of non-life insurance demand in the Middle East and North Africa region (MENA) using panel data for a sample of 13 countries over the period 2010-2018.We used two measures of non-life insurance demand: insurance density and insurance penetration.

The research results indicate that income, urbanization, financial development and the level of education positively affect non-life insurance demand, whereas political risk tends to decrease consumption. Anticipated inflation has no effect on non-life insurance demand.

Keywords: non-life insurance demand; insurance density; insurance penetration; determinants; Middle East and North Africa; Panel data.
JELClassification Codes: G22, L1, C23.

ملخص:

الهدف من هذه الورقة هو تحديد العوامل المؤثرة على الطلب على التأمين على غير الحياة في منطقة الشرق الأوسط وشمال إفريقيا باستخدام بيانات بانل لعينة مكونة من 13 دولة خلال الفترة 2010-2018، كما تم الاعتماد على مؤشرين لقياس الطلب على التأمين : كثافة التأمين وإختراق التأمين.

تشير نتائج البحث إلى أن الدخل، التمدن، التطور المالي ومستوى التعليم كلها عوامل تؤثر بشكل إيجابي على الطلب على التأمين على غير الحياة، بينما تعمل المخاطر السياسية على تقليل الاستهلاك منه، كما أن التضخم المتوقع ليس له أي تأثير على الطلب على التأمين على غير الحياة.

كلمات مفتاحية: طلب التأمين على غير الحياة؛ كثافة التأمين؛ إختراق التأمين؛ المحددات؛ منطقة الشرق الأوسط وشمال افريقيا؛ بيانات بانل.

تصنيفات JEL : C23،L1،G22 .

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1. INTRODUCTION

The insurance sector occupies an increasingly important place in the world, given the important role it plays in economic development. Insurance enables the development of wealth-creating activities by encouraging investors to take risks. In addition, it contributes in financing the country's economy through the financial investments made by insurance companies in anticipation of returning the funds collected to the policyholders in the form of compensation.

The non-life insurance sector, which includes insurance operations that are not aimed at the life of the insured[2], has experienced significant growth over the last decade. Non-life insurance premiums written worldwide reached 2373 billion USD in 2018, an increase of 6.2% compared to 2017 (Swiss Reinsurance Company, Sigma, 2019).However, this overall growth masks considerable differences in demand for non-life insurance across regions and countries. Indeed, non-life insurance markets in the Middle East and North Africa (MENA) remain underdeveloped compared to advanced markets. There are also significant differences between MENA countries in terms of non-life insurance density and penetration.

The disparity in the demand for non-life insurance across countries and regions raises questions about the causes of these variations and thus about what determines this demand. Much research, in different contexts, has attempted to identify factors that may explain the demand for non-life insurance. However, no previous study, to our knowledge, has focused exclusively on addressing this issue in the MENA region.

The objective of this paper is to identify factors that may explain the demand for non-life insurance in the MENA region by addressing the following main research question: what are the determinants of demand for non-life insurance in the MENA region?

The practical implications of this research can be used to formulate new strategies to develop non-life insurance markets. To achieve this

[2] Non-life insurance is mainly dedicated to insure things or goods, liabilities and debts as well as other insurance of persons.

objective, we estimated two multiple panel data regression models, using a sample of 13 countries in the region over the period 2010-2018.

The rest of the paper is organized as follows. The second section exposes a literature review on some determinants of the demand for non-life insurance and presents the research hypotheses. The third section provides a brief description of the non-life insurance market in the MENA region. The fourth section describes the used methodology. The fifth section presents some descriptive statistics for the variables included in our models. The results obtained are presented and discussed in the sixth section. Finally, the paper concludes with some recommendations and future research directions.

2. Literature review and hypothesis development

Based on the current theoretical and empirical literature, we were able to identify six independent variables that could affect the demand for non-life insurance in MENA countries. These variables can be grouped into three categories: economic variables (income, inflation and financial development), socio-demographic variables (education and urbanization) and an institutional variable (political risk).

2.1 Income

The majority of previous studies, whether focused on life or non-life insurance, conclude that income is the main factor positively affecting insurance demand like (Beenstock, Dickinson, & Khajuria, 1988), (Outreville, 1990), (Outreville, 1996), (Beck & Webb, 2003) , (Browne & Kim, 1993), (Li, Moshirian, Nguyen, & Wee, 2007) , (Esho, Kirievsky, Ward, & Zurbruegg, 2004), (Poposki, Kjosevski, & Stojanovski, 2015) and (Browne, Chung, & Frees, 2000).

In general, income positively influences consumption. This relationship also applies to insurance products. As income increases, insurance becomes affordable and consumers demand it to protect their assets. (Park & Lemaire, 2012). We therefore expect that income will have a strong positive impact on demand for non-life insurance.

Hypothesis 1: There is a positive relationship between income and demand for non-life insurance.

2.2 Urbanization

Urbanization refers to the percentage of a country's population inhabiting urban areas. Several authors have suggested that urbanization could be an important determinant of demand for non-life insurance. Previous studies have shown that the probability of loss occurrence increases in urban areas in which interaction among individuals tends be higher (Browne, Chung, & Frees, 2000). (Esho, Kirievsky, Ward, & Zurbruegg, 2004) use urbanization as an indicator of the probability of loss occurrence and find it to be positively related to demand for non-life insurance. (Sherden, 1984) shows that the urban population is exposed to a higher risk of accidents and auto thefts than the rural population. We expect urbanization to have a positive impact on demand for non-life insurance.

Hypothesis 2: There is a positive relationship between urbanization and demand for non-life insurance.

2.3 Education

In most previous empirical studies of the determinants of insurance demand, the gross enrollment rate in tertiary education is used as an indicator of educational attainment. According to (Browne & Kim, 1993) and (Park & Lemaire, 2012), Higher education may positively contribute to increase the degree of risk aversion and the level of awareness regarding the need for insurance. We therefore expect that education will have a positive impact on the demand for non-life insurance.

Hypothesis 3: There is a positive relationship between education and demand for non-life insurance.

2.4 Financial development

The measurement of financial development is very controversial since countries differ in their institutional environment and the structure of the financial market differs from one country to another according to the level of development (Outreville, 2012a, p. 69). Financial development is commonly measured by either the absolute size of the financial sector or its proportion of GDP (Outreville, 2012b).

The M2 variable proposed by (Outreville, 1990) and (Outreville, 1996) is often considered as a proxy for the size of the financial sector in

developing countries due to the predominance of the banking sector, as well as due to the lack of data on other financial assets. The size of bank credit or the amount of bank deposits are sometimes used as alternatives to measure financial development (Outreville, 2012a, p. 69).

The studies of (Outreville, 1990) and (Feyen, Lester, & Rocha, 2011) conclude that the demand for non-life insurance is positively linked to the level of financial development. According to (Beck & Webb, 2003), the proper functioning of the banking system contributes to strengthen consumer's trust in other financial institutions including insurance companies. We therefore expect financial development to have a positive impact on demand for non-life insurance.

Hypothesis 4: There is a positive relationship between financial development and demand for non-life insurance.

2.5 Expected inflation

The negative impact of expected inflation on the demand for life insurance has been widely documented in the previous studies like (Browne & Kim, 1993), (Outreville, 1996), (Beck & Webb, 2003), (Li, Moshirian, Nguyen, & Wee, 2007) and (Babbel, 1981). However, no study has validated the existence of such a relationship between expected inflation and demand for non-life insurance. The increase in the rate of inflation leads to a decrease in the purchasing power of individuals. Thus, people's expectations of inflation should have a negative effect on their demand for non-life insurance products. We therefore consider the following hypothesis:

Hypothesis 5: There is a negative relationship between expected inflation and demand for non-life insurance.

2.6 Political risk:

According to (Park & Lemaire, 2012), insurance markets are more developed in countries with low political risk, this is probably due to the fact that a stable political environment is more attractive for foreign investment and leads to a strengthening of the law enforcement.

The International Country Risk Guide (ICRG) rating, developed by the PRS group, includes 22 variables classified according to the three types of risk they measure: political risk, financial risk and economic risk. A

distinct index is created to represent each risk category.

The political risk index is used to assess the political stability of countries on a scale that extends from 0 to 100 points spread over 12 variables, called political risk components: government stability, socio-economic conditions, profile of investments, internal conflicts, external conflicts, corruption, military involvement in politics, religious tensions, law and order, ethnic tensions, democratic accountability and the quality of the bureaucracy. A high score on the "Political Risk Index" indicates a low degree of political risk. We therefore expect that a high score will have a positive impact on demand for non-life insurance.

Hypothesis 6: There is a negative relationship between political risk and demand for non-life insurance.

3. Description of the insurance market in the MENA region

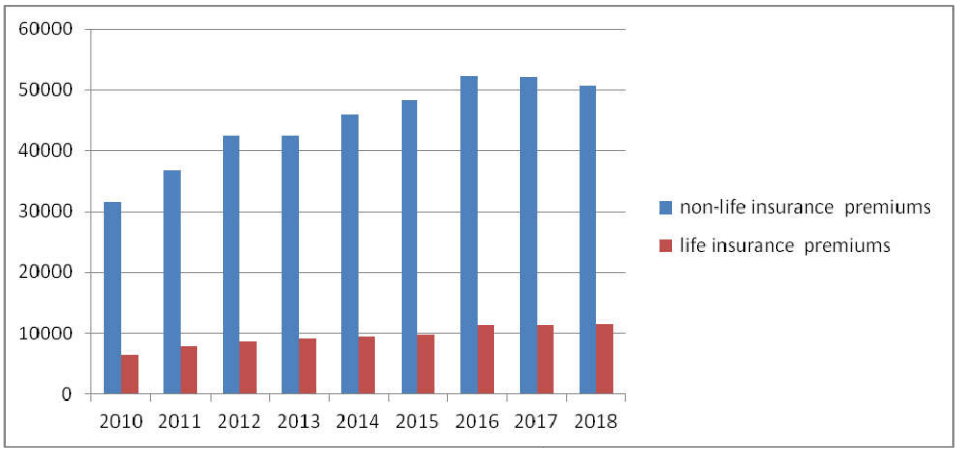
Non-maturity is the state of the insurance markets in the MENA region and their growth potentials are not sufficiently realized. Indeed, the MENA zone is characterized by low insurance penetration and a low share in global insurance. Based on our calculations, the average total number of insurance companies per country was 30 in the MENA region in 2018 while it was over 230 in the OECD.

Figures 1 and 2 show the evolution of the insurance sector in fifteen MENA countries[3] from 2010 to 2018 according to data published by Sigma, Swiss Re.

[3] Data on life and non-life insurance premiums are only available for 15 MENA countries: Algeria, Saudi Arabia, Bahrain, Egypt, Iran, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Tunisia, Malta, United Arab Emirates and Turkey.

Fig.1. Evolution of life and non-life insurance premiums written in the countries of the MENA region (2010-2018)

In millions USD

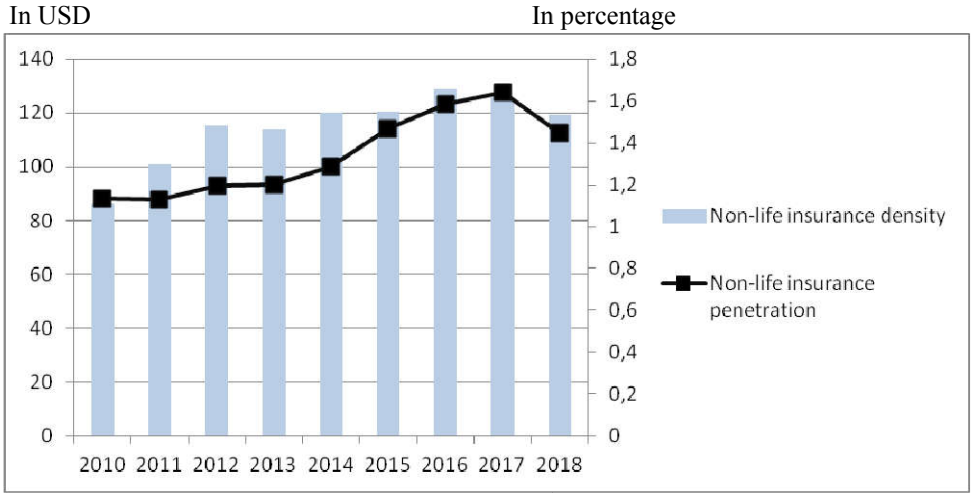


Source:authors' calculations based on data from Swiss Re, Sigma

According to the figure above, the insurance market in the MENA zone remains strongly dominated by the non-life branch, which held a market share of over 81% in 2018. The United Arab Emirates, Iran, Saudi Arabia and Turkey achieved alone around 68% of the total non-life insurance premium volume (Swiss Reinsurance Company, Sigma, 2019).

The general trend of non-life insurance premiums realized by the fifteen countries of the MENA region is increasing during the period 2010-2017, they went from 31.569 billion USD in 2010 to 52.225 billion USD in 2017.In 2018, the fifteen countries of the MENA region recorded 50.744 billion USD in non-life insurance premiums, a decrease of nearly 2.84% compared to 2017 , while at the global level, non-life insurance premiums rose 6.2%.Their market share in global non-life insurance is also declining, falling from 2.34% in 2017 to 2.14% in 2018. Moreover, Iran recorded the largest decrease (-14.34%), Turkey (-11.42%) and Egypt (-3.12%) (Swiss Reinsurance Company, Sigma, 2019).

Fig.2. Evolution of the density and penetration of non-life insurance in the countries of the MENA region (2010-2018)



Source:authors' calculations based on data from Swiss Re, Sigma

The figure above indicates that non-life insurance density is very low in the MENA region. In 2018, it stood at $119.4 in comparison to the world average of $312, it is significantly lower than that of the European Union ($1,063) and the OECD ($1,387). The Per capita non-life insurance expenditure is lowest in Egypt, Algeria and Tunisia: $09, $26 and $59, respectively (Swiss Reinsurance Company, Sigma, 2019). As for the insurance penetration, it stood at 1.45% in comparison to the world average of 2.78%, which is lower than that of the European Union (2.91%) and OECD countries (3.44%). The penetration rates are lowest in Algeria, Egypt and Kuwait: 0.62%, 0.36% and 0.87%, respectively (Swiss Reinsurance Company, Sigma, 2019).

4. Research methodology

4.1 The sample

Our study covers a sample of 13 countries from the Middle East and North Africa region, namely, Algeria, Tunisia, Morocco, Saudi Arabia, Qatar, Kuwait, Oman, Jordan, Bahrain, Egypt, Iran, Lebanon and Turkey.

We chose these countries due to the availability of data relating to

non-life insurance density, non-life insurance penetration and explanatory variables for the period 2010-2018.

4.2 Source and nature of the data

The data used in the study were collected from several sources. We obtained the density and penetration of non-life insurance from several Sigma reports published by Swiss Re. The economic variables are extracted from the databases of the International Monetary Fund and the World Bank. We obtained higher education gross enrollment rate from the Human Development Reports published by the United Nations Development Program. The urbanization rate was extracted from the World Bank's "World Development Indicators" database. Finally, we also obtained the political risk index from the international country risk guide developed by the Political Risk Services (PRS) group.

4.3 Measurement of variables

In this part, we will present the indicators used to measure the variables of our models.

4.3.1 The dependent variables

Two variables were used to measure the demand for non-life insurance: density and penetration of non-life insurance.

Non-life insurance density is defined as the ratio of the volume of non-life insurance premiums to the total population of the country. Expressed in USD, it indicates how much each inhabitant spends on average on non-life insurance (Outreville, 2012a, p. 65). This variable is used by (Millo & Carmeci, 2011)and (Park & Lemaire, 2012).

Non-life insurance penetration is defined as the ratio of the volume of non-life insurance premiums to GDP. It shows the relative importance of the insurance sector in national economies (Outreville, 2012a, p. 65). This variable is used by (Feyen, Lester, & Rocha, 2011) and (Poposki, Kjosevski, & Stojanovski, 2015).

4.3.2 The explanatory variables

The following table presents the measures of the explanatory variables used for the multivariate analysis.

Table 1. Measures of explanatory variables

Variable	Measure	Source
Income	GDP per capita	(Esho, Kirievsky, Ward, & Zurbruegg, 2004) (Outreville, 1996) (Feyen, Lester, & Rocha, 2011) (Poposki, Kjosevski, & Stojanovski, 2015)
Urbanization	Percentage of the population inhabiting urban areas	(Beck & Webb, 2003) (Browne, Chung, & Frees, 2000) (Park & Lemaire, 2012)
Expected inflation	the average inflation rate over the past 5 years	(Outreville, 1996) (Li, Moshirian, Nguyen, & Wee, 2007)
Political risk	The political risk index which is based on 100 points spread over 12 political risk components	(Park & Lemaire, 2012)
Education	Gross enrollment rate in higher education	(Park & Lemaire, 2012) (Li, Moshirian, Nguyen, & Wee, 2007) (Poposki, Kjosevski, & Stojanovski, 2015)
Financial development	M2 as a percentage of GDP	(Li, Moshirian, Nguyen, & Wee, 2007) (Outreville, 1990)

Source: prepared by the researchers

4.4 Specification of models

As in the studies of (Millo & Carmeci, 2011)and (Outreville, 1996), we apply a natural logarithmic transformation (Naperian log, Ln) to variables that are not expressed as ratios or percentages in order to be able to interpret their coefficients in terms of elasticities. Thus, only the non-life insurance density, income and political risk variables are subject to the log transformation. This study proposes two models to effectively test the variables hypothesis of our study in which the dependent variables are non-life insurance density and non-life insurance penetration.

Model (1) :

$$ln(DENS)_{it} = \alpha_0 + \beta_1\, ln\,(INC)_{it} + \alpha_2\,(URB)_{it} + \alpha_3(EXPINF)_{it} + \alpha_4\, ln\,(PORISK)_{it} + \alpha_5(\,EDUC)_{it} + \alpha_6\,(FD)_{it} + \epsilon_{it}$$

Model (2) :

$$PEN_{\,it} = \alpha_0 + \beta_1\, ln\,(INC)_{it} + \alpha_2\,(URB)_{it} + \alpha_3(EXPINF)_{it} + \alpha_4\, ln\,(PORISK)_{it} + \alpha_5(\,EDUC)_{it} + \alpha_6\,(FD)_{it} + \epsilon_{it}$$

With: $DENS_{it}$: non-life insurance density of country i at time t, PEN_{it}: non-life insurance penetration of country i at time t , INC_{it} : GDP per capita in country i at time t , FD: financial development of country i at time t , $EXPINF_{it}$: expected inflation of country i at time t, URB_{it}: the proportion of the population of country i living in urban areas at time t , $PORISK_{it}$: the political risk index of country i at time t, $EDUC_{it}$: the gross enrollment rate in tertiary education of country i at time t , ϵ_{it} :The error term.

In order to be able to determine the explanatory factors of the demand for non-life insurance, we opted for Panel regression method which takes into account both individual and time dimensions. Our panel is composed of 117 country-year observations.

5. Descriptive statistics

In this section, we will present some descriptive statistics for the variables included in our models.

Table 2. Descriptive statistics of the dependent and the explanatory variables

Stats	Mean	sd	Max	Min
DNVIE	206.1204	252.6283	1400.057	8
PNVIE	1.339573	0.5953822	2.4	0.33
INC	17635.25	21114.02	101933.1	2440.5
URB	78.06138	15.46369	100	42.704
EXPINF	5.646923	4.810572	22.9	-0.1
RISQPO	62.01838	7.151816	74	46.76
EDUC	40,09	16.09326	95	10
FD	90.03239	50.6492	261.92	37

Source: from statistical processing by the STATA 11 software

Descriptive statistics shows a significant disparity in the density and penetration of non-life insurance in the MENA countries covered by the study. This level of dispersion is reflected in the high values of their standard deviations, which proves the relevance of seeking its explanation.

Regarding the average income per capita, the table above indicates that it is $17,635.25 while the average density of non-life insurance is $206,1204. This means that non-life insurance consumption represents a very low share of income, averaging 1.17% during the study period

(average non-life insurance density / average income). On the other hand, and from the statistics presented in the table, we see that the variables: income, expected inflation, Education, Urbanization and financial development show a strong dispersion.

Furthermore, an analysis of the correlation coefficients is important in order to test the relationship between the dependent variables and the independent variables as well as the existence of the multicollinearity problem. Therefore, we calculated the correlation coefficients between all the variables. The results are presented in the following table:

Table 3. The correlation matrix

	Ln (dens)	pen	Ln (inc)	Urb	expinf	Ln (porisk)	educ	fd
Ln (dens)	1.0000							
pen	0.2744*	1.0000						
Ln (inc)	0.8758*	-0.1890*	1.0000					
urb	0.8537*	0.1719	0.7910*	1.0000				
expinf	-0.3470*	-0.1189	-0.3061*	-0.3600*	1.0000			
Ln (porisk)	0.5850*	0.0012	0.5556*	0.5039*	-0.5496*	1.0000		
educ	-0.0005*	0.0906	-0.0670	0.0150	0.3513*	-0.4066*	1.0000	
fd	0.0258	0.5358*	-0.1690	0.1503	-0.2085*	-0.2378*	-0.0768	1.0000

(*): designates the significance level of 5%.

Source: from statistical processing by the STATA 11 software

The correlation matrix indicates that insurance density is strongly and positively correlated with political risk, urbanization and income, and it is negatively correlated with expected inflation and education. As for insurance penetration, it is strongly and positively correlated with financial development while it is negatively correlated with income.

The matrix also indicates that there are significant correlations, positive or negative, between some explanatory variables. The highest correlation coefficients are those which relate income with urbanization, political risk and expected inflation, as well as political risk with expected inflation, education and urbanization. However, no correlation coefficient exceeds the threshold at which serious multicollinearity problems generally begin to occur[4] . To ensure the absence of the multicollinearity problem, a

[4] (Gujarati, 2003)suggests 0.8 as the threshold at which the multicollinearity problem can interfere with the regression analysis and skew the results.

further examination of the VIF coefficients and the tolerance was carried out[5].

Table 4. VIF test for the explanatory variables

Variable	VIF	1/VIF
LNINC	3.60	0.277492
URB	4.11	0.243150
EXPINF	1.76	0.569166
LNRISQPO	2.83	0.353877
EDUC	1.48	0.676981
FD	1.84	0.544440

Source: from statistical processing by the STATA 11 software

6. Results and discussion

Regression in panel data requires us to comply with certain econometric steps, the first point to examine is the specification of the homogeneity or heterogeneity of the data generating process (Doucouré, 2008) . To do this, we used the Fisher test to test the null hypothesis of equality of the coefficients of the models studied. The results of this test confirm the heterogeneity of the individuals in the two models since the probability of the Fischer statistic is less than 5% for both models.

After finding the existence of an individual effect, we performed the Hausman specification test that allows us to choose between the fixed-effects model and the random-effects model. The results indicate that the probability associated with the chi-squared statistic is less than 5% for the first model, so we reject the null hypothesis and retain the fixed effects model for the estimation of the first model. However, the probability associated with the chi-squared statistic is greater than 5% for the second model. As a result, the random effects model is the most appropriate.

Moreover, we tested for the presence of autocorrelation using the (Wooldridge, 2002) test, whose null hypothesis is the absence of error autocorrelation. The results of this test indicate the absence of serial

[5] All explanatory variables have a VIF "Variance Inflation Factor" value of less than 10. According to (Evrard, Pras, & Roux, 2003), a VIF of less than 10 and a tolerance of more than 0.1 indicate the absence of multicollinearity.

autocorrelation (Prob > F is greater than 0.05) for both models. Next, we tested for the presence of heteroskedasticity by following the necessary steps using STATA software. In the context of a heteroskedasticity test, the null hypothesis is homoscedasticity. The results of this test reject the null hypothesis and confirm the presence of heteroskedasticity in both models. (Prob > chi-squared is less than 5%). Therefore, we used the Panel-Corrected Standard Errors (PCSE) method to estimate the two models. This method takes into account the presence of this statistical problem and allows the correction. It provides unbiased coefficients especially for micro-panels (Beck & Katz, 1995)and (Beck & Katz, 1996)[6]. The regression results are presented in the following table:

Table 5. Regression results

Independent variables	Expected sign	Model (1) Coef (p value)	Model (2) Coef (p value)
Income	+	.6536784*** (0.000)	-.3561361*** (0.000)
Urbanisation	+	.0177816*** (0.000)	.015637 *** (0.000)
Expected Inflation	-	.0118399 (0.156)	.0100917 (0.293)
Political risk	+	2.387811*** (0.000)	1.898279 *** (0.001)
Education	+	.0081205*** (0.000)	.0067738*** (0.000)
Financial development	+	.003689*** (0.000)	.0058285 *** (0.000)
cons		-13.22993 (0.000)	-5.268471 (0.032)
Wald chi2 Prob>chi2 Log likelihood		6249.43 (0.0000)	1290.25 (0.0000)

*, ** and *** indicate significance at 1%, 5% and 10% levels respectively

Source: from statistical processing by STATA 11 software

According to the regression results presented in the table above, the Wald Chi-squared test of overall significance of the two models is significant at the 1% level (Prob > chi-squared = 0.0000), so the

[6] Estimating the same model with the FGLS (Feasible Generalized Least Squares) method gives the same results.

explanatory power of the two models is satisfactory.

The results indicate that income positively and significantly affects non-life insurance density, a 1% increase in income leads to a 0.653% increase in non-life insurance density; this confirms the hypothesis (H1) that insurance becomes affordable as income increases and consumers demand it to protect their assets. This result is consistent with those obtained by (Millo & Carmeci, 2011), (Outreville, 1990), (Beenstock, Dickinson, & Khajuria, 1988), (Browne, Chung, & Frees, 2000) and (Poposki, Kjosevski, & Stojanovski, 2015). However, the results indicate that income negatively and significantly affects non-life insurance penetration. A 1% increase in income leads to a 0.356% decrease in non-life insurance penetration despite the strong positive correlation (92%) between non-life insurance premiums and GDP. This can be explained by the fact that the increase in GDP is higher than the increase in non-life insurance premiums[7]. (Beenstock, Dickinson, & Khajuria, 1986) found the same result and explained this inverse relationship by inequalities in income distribution. They showed that as the income distribution becomes more unequal, the demand for insurance by low-income individuals becomes limited due to budgetary constraints.

The study also finds a positive and significant relationship between the demand for non-life insurance and urbanization. This finding supports the explanation proposed by (Browne, Chung, & Frees, 2000) that the probability of loss increases in urban areas because the rate of interaction between individuals is higher, leading to an increase in the demand for non-life insurance. Hypothesis (H2) is therefore validated. This result is consistent with that found by (Esho, Kirievsky, Ward, & Zurbruegg, 2004).

Our results indicate that there is a positive and significant relationship between the level of education and the demand for non-life insurance. This result confirms the hypothesis (H3) stating that higher education may positively contribute to increase the degree of risk aversion and the level of awareness regarding insurance necessity. This result is consistent with that

[7] Non-life insurance penetration is defined as the ratio of non-life insurance premiums to GDP (GDP per capita × population). Thus, when the growth rate of GDP per capita is higher than the growth rate of non-life insurance premiums, non-life insurance penetration declines.

of (Park & Lemaire, 2012).

Consistent with the results of previous studies such as those found by (Feyen, Lester, & Rocha, 2011)and (Outreville, 1990), financial development is positively linked to demand for non-life insurance. The level of financial development positively and significantly influences the density and penetration of non-life insurance. This result reinforces the idea advanced by (Beck & Webb, 2003) that consumers who trust their banks will also trust insurance companies. The hypothesis relating to financial development (H 4) is therefore verified.

Our results also indicate that expected inflation has no significant effect on the density and penetration of non-life insurance, so there is no significant relationship between expected inflation and demand for non-life insurance. This result is inconsistent with our assumption that inflation expectations should have a negative effect on demand for non-life insurance products as inflation leads to a decrease in purchasing power. Hypothesis (H5) is therefore not validated. This result does not match that of (Feyen, Lester, & Rocha, 2011).

The results also show that the demand for non-life insurance is negatively and significantly related to political risk, the higher the degree of political risk (the lower the political risk index score), the lower the demand for non-life insurance[8]. A 1% increase in the degree of political risk leads to a 2,387% and 1,898% decrease in the density and penetration of non-life insurance respectively. The hypothesis (H6) stating that countries with low political risk have more developed insurance markets is therefore validated. This result is consistent with that found by (Park & Lemaire, 2012).

7. CONCLUSION

This article aims to identify the factors that determine the demand for non-life insurance in the Middle East and North Africa (MENA) region using panel data for a sample that includes 13 countries over the period 2010- 2018. The density and penetration of non-life insurance are used as proxies for the demand for non-life insurance.

[8] A high score on the "Political Risk Index" indicates a low degree of political risk.

Based on previous studies of the determinants of demand for non-life insurance, we identified six variables that may affect demand for non-life insurance in the MENA region. These variables can be grouped into three categories: economic variables (income, inflation and financial development) socio-demographic variables (education, urbanization) and an institutional variable (political risk).

The results of our study indicate that income and the rate of urbanization positively affect demand for non-life insurance, while political risk has negative effect. In addition, we find that financial development, measured as the broad money (M2) as a percentage of GDP, increases consumption of non-life insurance. This result reinforces the idea advanced by (Beck & Webb, 2003) that consumers who trust their banks will also trust insurance companies. Thus, we suggest that the development of bancassurance can encourage clients to take out insurance products provided by their banks which they trust. We also find that education positively affects the demand for non-life insurance in MENA countries. Thus, we consider that there is a need to strengthen insurance education in order to increase awareness of the need for non-life insurance. However, the results of the study indicate that expected inflation does not have a significant effect on the demand for non-life insurance in MENA countries.

As more data on explanatory variables, insurance density and penetration become available, future studies may introduce the religion variable which we were unable to include as explanatory variable since the sample of our study particularly consists of Muslim countries.

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